

Angiomat Illumena Injector Ceiling Wall Mount Systems

NOTE: This instruction sheet is to be used for Angiomat Illumena injector systems. If you are installing an OptiVantage or an OptiOne injector, discard this instruction sheet, and refer to instruction sheet 844964.

DESCRIPTION

The suspension arm for the Angiomat Illumena, may be mounted either from the ceiling or the wall. The remote arm will allow the powerhead to move through a wide range of vertical and horizontal motions. The arm can be easily raised or lowered after proper adjustment. This instruction is concerned with the following part numbers:

<u>P/N</u>	<u>DESCRIPTION</u>
241060	Short Fixed Ceiling Mount Column (58cm)
241061	Long Fixed Ceiling Mount Column (85cm)
241062	Movable Ceiling Mount Column
241063	Extension/Spring Arm
241052	PowerHead Bracket
241065	Brake and Carriage Assembly
241059	Cable Carrier kit (included with 241038)
241038	2.5 meter rail (98.425 inches)
241037	Wall Mount Bracket <i>to mount to wall only</i>
241064	Wall Mount Suspension System

CONTENT WITH SPECIFICATIONS

In case with one of the following sets of contents:

(Fixed Suspension System)

241060 or 241061 fixed Ceiling
Mount Column
241052 Powerhead Bracket
241063 Extension Arm

(Movable Suspension System) with 2.5 meter rail

241062 Movable Ceiling Mount Column
241052 Powerhead Bracket
241063 Extension Arm
241038 2.5 meter rail (98.425 inches)

241064 (Wall Mount Suspension System)

241037 Wall Mount Bracket
241052 Powerhead Bracket
241063 Extension Arm

(Movable Suspension System) w/out 2.5 meter rail

241062 Movable Ceiling Mount Column
241052 Powerhead Bracket
241063 Extension Arm

(Change fixed system to movable system)

241065 Carriage Assembly
241038 2.5 meter rail



WARNING

The Illumena ceiling suspension system is constructed with ferrous materials and therefore is **NOT** to be used in a Magnetic Resonance imaging (MRI) environments.

I. SUSPENSION SYSTEM MOUNTING

NOTE: *Prior to installation of the suspension system, inspect the vertical column, horizontal arm assembly and J-Bow arm for damage that may have occurred during shipping that may weaken the system. This includes dents and cracks of the components, cracks around fasteners of the vertical column and J-Bow arm, and cracks of the factory installed covers on the horizontal arm assembly.*

When mounting a ceiling column, it is required that the mounting be to a solid and substantial mounting surface and that 4 M10 bolts (grade 10.9 or stronger) be used. Such bolts have a tensile strength of about 15,000 pounds each. The anchorage should be capable of taking the full tensile strength of the M10 bolts so that the bolts will break before the anchorage pulls out of the ceiling. Although the actual requirements must be determined by the on-site engineer and will vary according to equipment mounted, probability of collision or overload and other conditions unique to each installation, the following information may be useful to the engineer:

The typical working load on each bolt is between 250 and 350 pounds. A minimum safety factor requires the mounting bolts to withstand a tensile load of only 1500 pounds when only the "normal" loads are increased by a factor of four.

However, the real concern is the safety of people in the area of the equipment should there be a collision of the arm or column with motorized equipment. It is important that the mounting bolts do not break and the ceiling and anchorage do not fail before the other components of the system fail by bending. The difference is that a failure by bending will tend to retain the equipment without allowing it to fall.

Seismic considerations as required in California should also be evaluated. Calculations have shown that the recommended mounting will exceed the loads imposed by the lateral and vertical accelerations expected in most seismic zones. Additional assistance can be provided to the planning engineers for specific situations.

In summary, mounting the column with 4 M10 grade 10.9 (or 7/16" grade 8) bolts to a solid ceiling or Unistrut system will usually provide a safe installation.

II. PRECAUTIONARY COMMENTS

1. The connection, installation, removal, and repair of electrical components should be performed by qualified, licensed technicians only.
2. Ceiling mounted systems must be installed properly. Failure to follow the instructions provided may lead to a potentially dangerous and unstable condition of the system.
3. When installing and adjusting the PORTEGRA and/or associated components, be sure to cut off the supply of electricity to the entire system - **Hazardous condition!**
4. The PORTEGRA is under constant spring tension. When installing and removing the spring arm always move it up slowly to the upper stop.
5. It is strongly recommended that prior to installing the system to a ceiling or wall, a structural engineer must certify that the rough ceiling or wall is sufficiently strong to provide proper support. Local building codes must be met for installation.
6. Determination of required installation hardware and torque values for installation of the ceiling column is the sole responsibility of the structural engineer.
7. Prior to installation, a structural engineer must certify that the rough ceiling/wall is sufficiently strong to provide proper support for the system! Installation of the track system, mounting plate, and ceiling column, along with the appropriate installation hardware must be completed according to local building codes. Installation should only be performed from a scaffold or a scaffold base to assure a stable footing. Additionally, all work and safety regulations must be observed.
8. Installation of the system must be performed by qualified personnel.
9. If any other device such as a surgical lamp is to be installed, consult the manufacturer of this equipment for the necessary electrical and mechanical requirements. Liebel-Flarsheim Company LLC does not assume responsibility for system failures in the event any other device is installed other than the Injector equipment.
10. With regard to suspended ceilings; these installation procedures assume you are mounting the system into concrete or Unistrut.

III. PREVENTATIVE MAINTENANCE

1. If you find any defects, either repair the system or call your vendor for service. Do not use the mounting system until the problem has been corrected.
2. Inspect all parts of the arm and mounting system for cracks and other defects that could weaken the system.
3. Ensure the mounting system is solidly assembled, with no loose parts.
4. Ensure the arm moves smoothly in all directions, with no binding or scraping.

NOTE: *The preventative maintenance tests described above should be performed on a monthly basis.*

IV CEILING COLUMN MOUNTING INSTRUCTIONS

A. Mounting the Ceiling Column

1. Position of the mounting assembly is critical. To ensure maximum usefulness of the unit, carefully plan the position of the mounting assembly. Consider such things as the size of the room, the position of the equipment in the room, ceiling height, and the reach limitations of the shield. If the position of the 2 pins of the yoke is not planned perfectly, there is a danger of losing mobility of the support arm due to possible obstruction by the ceiling column. Decide on position of yoke and determine plug drills.



WARNING

Do not locate the mounting of the Ceiling Column directly over the imaging equipment table. This includes the entire range of movement of the table.

NOTE: *Special installation procedures are used for jurisdictions subject to seismic disturbances, such as the state of California and other areas in the United States and other countries. Local, state, or regulatory agencies mandate installation requirements for these areas. Verify that installation complies with these requirements.*

2. Mark position of drill-holes as shown in Figure 1.

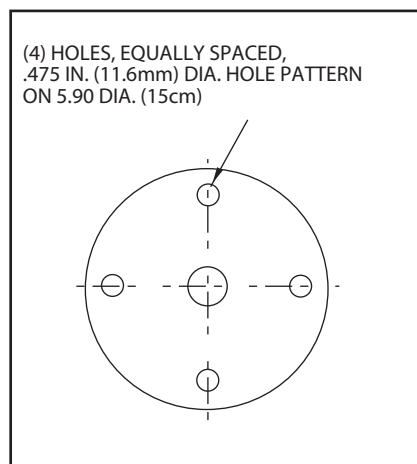


Figure 1. Hole Pattern of Ceiling Mount

3. If the electrified pin shall be used, connection must be done by a licensed electrician. If not, separate the cable from the flange and push it into the column.
4. Before mounting column to ceiling check for proper mounting post orientation. The injector mount arm must be mounted to the nonelectrical post.
5. If the Column is to be attached directly to a concrete ceiling, do the following first:
Determine if the column is to be installed with the two arm posts in line across a table, or parallel with a table (Normally installed across).
6. If using concrete anchors, drill the four holes to fit the anchors. Install the anchors in the manner required. If the concrete is of insufficient hardness, an alternate mounting method may be required as determined by the site engineer.
7. Drill mounting holes as required. If the powerhead cable will be routed through suspended ceiling panels, a Cable Entrance hole must also be considered.

B. Installation of the Ceiling Column with Safety Chain to the Safety Anchor

1. The safety anchor (Figure 2) should be attached to the ceiling using the installation hardware specified by the structural engineer.
2. Secure the chain and the attached spring-loaded safety latch (Figure 2) to prevent it from falling into the column tube.
3. Push up the ceiling column and engage the spring-loaded safety latch into the safety anchor.



CAUTION

Be certain that the spring-loaded safety latch is closed following installation

4. Once the chain is engaged into the safety anchor, push up the ceiling column slightly and rotate the spring loaded safety latch 180 degrees (Figure 2), to assure the small diameter of the safety latch being hooked into the safety anchor.

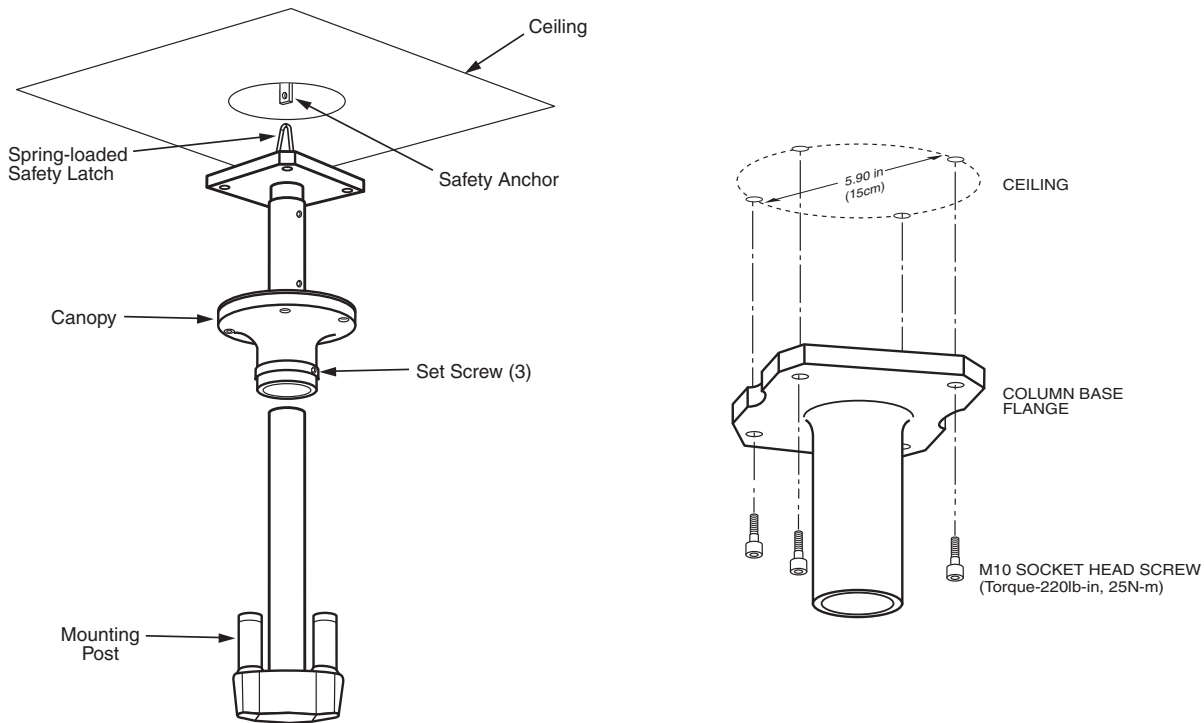


Figure 2

C. Installation of the Ceiling Column with Safety Chain to the Safety Anchor

1. When installing the ceiling column, be sure that the mounting post **without** electrical wiring points to the head end of the table and the mounting post **with** the electrical wiring points to the foot end of the table.
2. Remove the three (3) set screws (Figure 2) from the metal sleeve of the canopy.
3. Carefully slide the canopy down the ceiling column (use caution to prevent scratches in the finish on the ceiling column) and allow it to rest on the mounting post assembly.



CAUTION

To avoid damage to the finish of the ceiling column, do not secure the canopy to the column with the set screw unit installation is complete.

NOTE: Liebel-Flarsheim strongly recommends that all Ceiling Mount connections, screws, etc. be retightened after a period of 8 weeks.



CAUTION

Collision with other equipment can cause structural failure of suspension arm, resulting in operator or patient injury. If collision occurs, immediately have arm inspected by a qualified technician.

4. Fix the ceiling column to the ceiling, to an anchorage plate, or to the carriage of a track system, with the supplied 4 M10 x 40 socket head screws or other suitable hardware. Apply Loctite® screw lock or similar to the threads to secure. Due to the weight supported by the ceiling, this work must be carried out thoroughly and be supervised by on-site engineers. Torque fasteners to 220lb-in (25N-m).
5. Make provisions for appropriate electrical connections. It is intended that the power cord enter the column through a ceiling access hole in the center of the mounting hole pattern. Take care that the voltage supply and connections, especially the grounding wire, are correct.
6. It is strongly recommended that all Ceiling Mount Connections, screws, etc. be retightened after a period of 8 weeks.
7. Following installation of the ceiling column, carefully slide the canopy upward until it rests against the ceiling, and secure the three (3) set screws.

D. Securing the Plastic Cover to the Ceiling Column (Figure 3)

1. To avoid damage to the lower plastic cover during shipping, the two halves comprising the cover (Figure 3) must be attached on-site. To ensure proper installation of the cover, please complete the following steps.
2. Remove the plastic cover from the shipping carton and make sure it is in good condition.
3. Carefully remove the mounting screws (Figure 3) from the nut clips making sure to store them in a safe place for use in step 5 below.
4. Attach the two halves of the cover below the two disc (Figure 3). Carefully fit both halves of the cover together and click the pegs into the grooves provided. Make sure both halves align completely and the tabs on the top surfaces are positioned above the nut clips by gently squeezing them together in direction (B) (Figure 3). Once the height of both halves is level, gently squeeze them in direction (A) (Figure 3) and snap the halves together.
5. To secure the plastic halves to the column, insert and tighten the mounting screws (Figure 3) into the nut clips provided.

NOTE: Assembly must be carried out without applying much force.

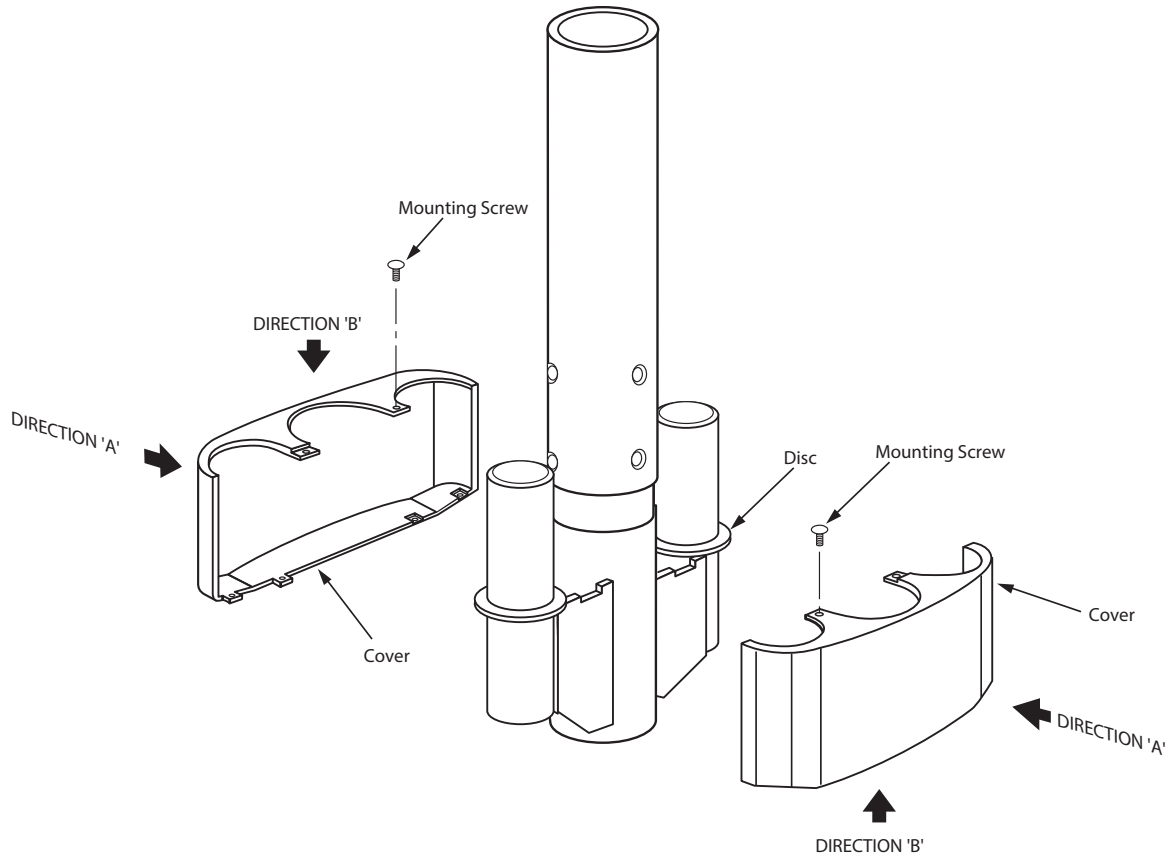


Figure 3 Securing Plastic Cover to the Ceiling Column

E. Removing the Cover from the Column

Note: *Should removal of the column be necessary following installation, please complete the following steps to remove the plastic cover from the column.*

1. Remove the two screws (Figure 3) from the plastic halves and store in a safe place.
2. Gently separate the plastic halves near the top, again without applying much force, in direction opposite to (A) (Figure 3).
3. Separate the pegs from the grooves by gently twisting and pulling in the direction opposite to (A) (Figure 3).
4. Remove the plastic halves completely.
5. Following the removal of the plastic halves, insert the screws (Figure 3) into the nut clips provided.

Note: *The entire disassembly process should be completed carefully without using much force! To avoid damage to the plastic halves during shipping or moving, they must be removed from the column and packaged as received, separately in the shipping carton.*

V WALL MOUNTING

NOTE: Wall Mount configuration **does not** apply to the OptiVantage or OptiOne injector.

1. Wall brackets are usually used to mount Adjustable Arms to vertical surfaces such as concrete walls. Additionally, wall brackets can be attached to vertical beams and other suitable vertical surfaces as determined by the installation engineer.
2. For attachment to a concrete wall, first determine a suitable height above the floor for the wall bracket. This is normally at a minimum height of 200cm (78 3/4 inch) to the bottom of the bracket. The distance from the ceiling to the bottom of the bracket should be about 60cm (23 5/8 inch), to take into account the available upward movement of the suspension system.



WARNING

Collision with other equipment can cause structural failure of suspension arm, resulting in operator or patient injury. If collision occurs, immediately have arm inspected by a qualified technician.

3. Locate the wall mount bracket



WARNING

Wall Mount Bracket (P/N241037) is designed to be wall mounted only. Mounting to other surfaces can result in collision with moving parts causing Suspension Arm failure and injury to patient or operator.

4. Determine the location of the mounting bracket and then position the bracket against the surface. The holes in the bracket may be used as a template.
5. Prepare the holes for concrete anchors or through-bolts appropriate to the installation.
6. If the masonry is not in good and solid condition, the wall bracket must be secured using other suitable fixings. Due to the weight supported at the full extension of the Suspension Arm, this work must be carried out thoroughly and be able to take the full tensile strength of a 10mm hardened bolt.
7. Drill mounting holes as required. See Figure 4.
8. Use appropriate fasteners and anchors to anchor wall mount bracket to wall.

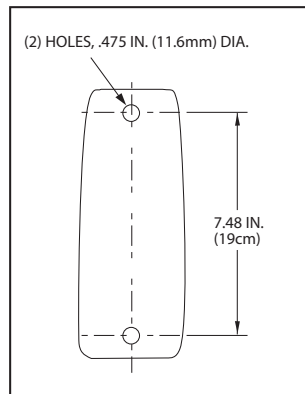


Figure 4. Hole Pattern of Wall Mount Bracket

VI. MOUNTING THE HORIZONTAL ARM ASSEMBLY TO THE CEILING COLUMN

NOTE: *The suspension system is to only be used with Liebel-Flarsheim Company LLC power injectors. The maximum load capacity of the suspension spring arm should not exceed 32lbs at full extension. The use of accessories not complying with the equivalent safety requirements of this equipment may lead to a reduced level of safety of the resulting system.*



WARNING

*The Suspension Arms are shipped with an internal limiter which is set to restrict the upward travel of the arm to the horizontal position. Always raise the arm to the upward limit of travel before removing any equipment mounted to the arm. **THE ARM WILL SPRING UPWARD WITH CONSIDERABLE FORCE UNDER NO LOAD CONDITIONS, AND MAY CAUSE SERIOUS PERSONAL INJURY***

1. Separate the two halves of the arm pivot cover by inserting a small punch or screwdriver into the hole on the side of one cover half. A firm push will split the cover halves at the joint line. The two halves snap together without the use of screws.
2. Leave the large washer (48mm diameter) on the pivot. Remove the snap-ring and the small washer (39mm diameter) from the storage position at the top of the plastic cover. Also, at the top of the plastic cover, there is a washer with a square tab in it's inner diameter. This washer may be discarded.
3. Mount the horizontal arm onto the post and place the small washer (39mm diameter) on top.
4. Replace the snap-ring carefully into the groove located in the upper part of the post.
5. Carefully replace the cover.

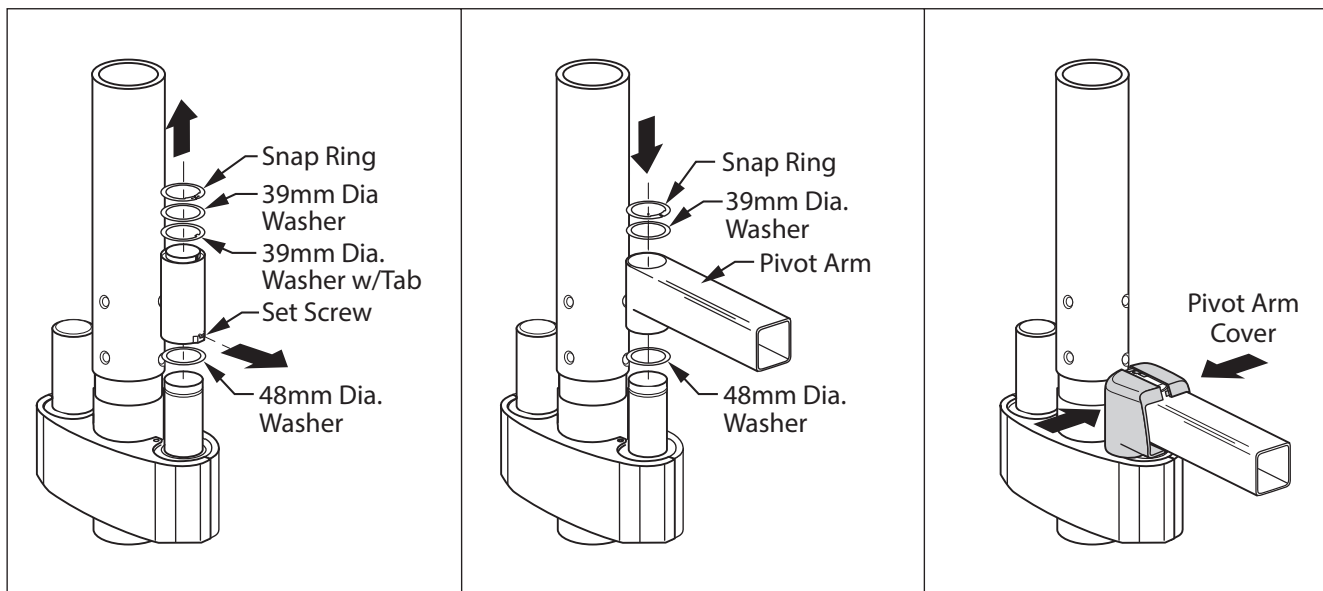


Figure 4a Horizontal Arm to Ceiling Column

VII. ATTACH THE J-BOW TO THE HORIZONTAL ARM

1. Remove safety collar from the adjustable arm by removing set screw and retaining screw. Then slide collar off the adjustable arm.
- Refer to Figure 5.
2. Slide safety collar over the J-Bow mounting spindle.
 3. Insert the J-Bow mounting spindle into the adjustable arm.
 4. Position the safety collar until the mounting spindle retaining clip slot is presented. Then insert retaining clip through the adjustable arm slot and into the mounting spindle retaining clip slot to secure J-Bow to the adjustable arm.
 5. Position the safety collar until the safety pin hole aligns with the J-Bow mounting spindle eye hole. Insert safety pin.
 6. Plug both safety collar holes with rubber plugs.
 7. Lower the safety collar over the retaining clip and re-install the retaining screw into the safety collar.
 8. Apply Loctite (included) onto set screw threads. Run set screw into collar as far as possible (set screw will be flush with outside diameter of collar when seated properly), the J-Bow will be difficult to rotate. Then back set screw out quarter to half turn just enough so that the J-Bow rotates freely.
 9. Prior to installation of injector as outlined in this section, ensure the three fasteners attaching J-Bow to the Mounting Spindle are present and are tight (Torque - 39lb-in, 4.5N-m). Refer to Figure 5.

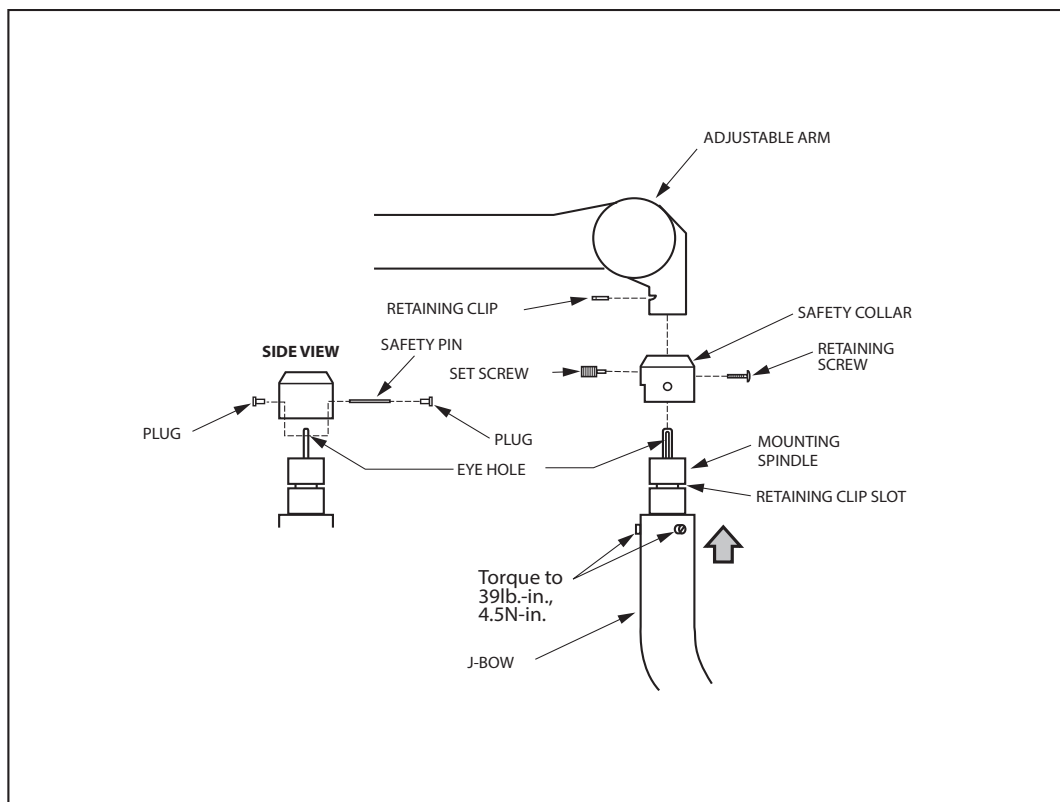


Figure 5 J-Bow to Horizontal Arm

VII. ATTACH THE POWERHEAD TO THE J-BOW

ILLUMENA

NOTE: For mounting the powerhead: (1) if you are installing the suspension system for an Angiomat Illumena injector system, use pliers to remove the spring pin located on the powerhead bracket. However, if you are installing the suspension system for an Angiomat Illumena with console mount, do not remove the spring pin. Instead order kit 900681.

1. Slide the Powerhead pivot assembly into the J-Bow.
2. Route powerhead cable along the outside of the J-Bow. Secure cable with wire ties.
3. Attach the connector of the cable(s) to the appropriate extension cable(s). Allow a sufficient service loop between the powerhead bracket and the arm.
4. Secure the extension cable(s) to the remote arm assembly.

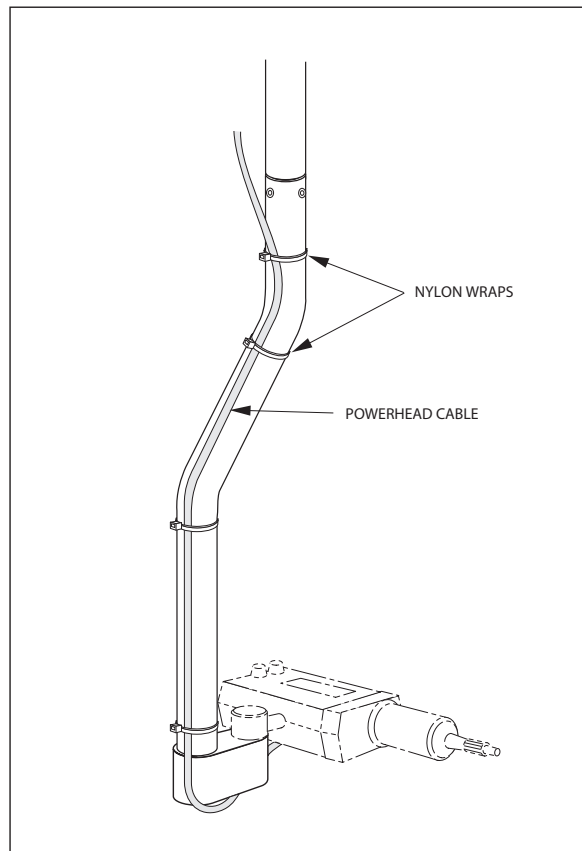


Figure 6 Powerhead and Bracket Attached to Mounting Arm

VIII. ADJUSTING TRAVEL LIMITS OR ARM

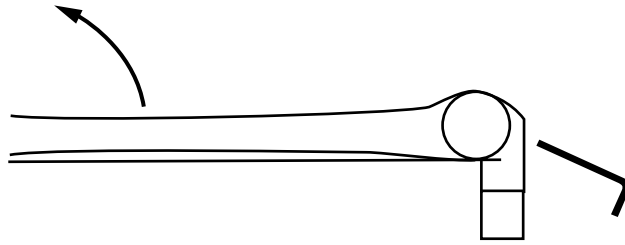


Figure 7

1. For shipping purposes, the vertical motion of the arm is limited to the horizontal. To increase the range of motion, insert a 5mm hex wrench into the opening at the location shown. There is a cover which fills the opening which will move out of the way when the tool is inserted.
2. Turning the wrench counterclockwise will increase the vertical travel. When the wrench no longer turns freely, the maximum travel of 45 degrees will be obtained. Full clockwise adjustment will return the limit to the horizontal setting.

NOTE: Always return the limit to the horizontal setting (full clockwise) before removing the suspended device or before removing the arm from the column.

IX. BALANCE SETTING OF THE ADJUSTABLE ARM

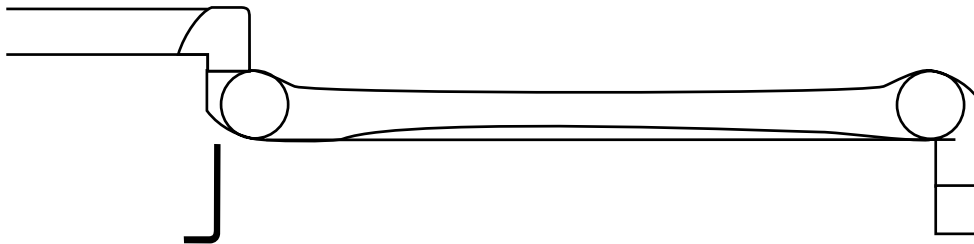


Figure 8

NOTE: The following steps are to be done only after the powerhead has been properly installed. The arm should remain stable in position, yet be able to be moved easily. Adjustments are only necessary if the arm moves more easily in one direction than the other direction.

To adjust the balance of the arm, insert a 5mm hex wrench into the hole at the position shown. Turning the wrench counterclockwise will increase the lift force of the arm.

X. INSTALLATION OF CARRIAGE SYSTEM

INSTALLATION OF 2.5 METER RAIL

Two Components are supplied:

- 2.5 meter rail (1 ea)
- Cable Holder Kit (1 ea)

2.5 Meter Rail

As shown below in Figure 15, the 2.5 meter rail consists of the following:

- 2 Channels for the carriage to run through
- 2 End Covers
- 4 Cross stabilizers

NOTE: The hole pattern necessary for mounting the 2.5 meter rail is shown in Figure 9

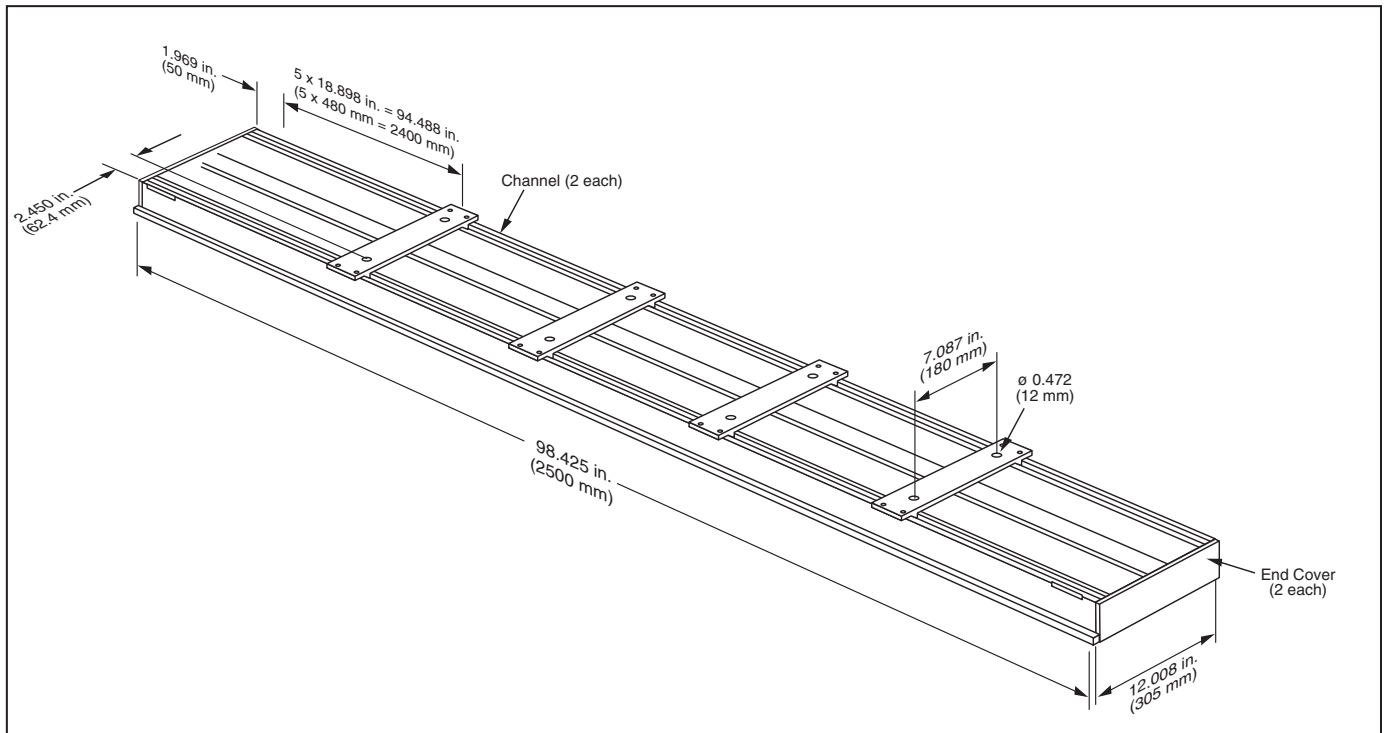


Figure 9. 2.5 Meter Rail

NOTES:

Remove the end cover for insertion of suspension carriage.

2.5 meter rail is supplied with a cable holder kit which runs in the outside channel.

It is strongly recommended that only Liebel-Flarsheim products be used on this rail and suspension system. All Liebel-Flarsheim products are within the specified load limits. Otherwise contact the manufacturer.

Mavig components should not be interchanged with other manufacturer's parts.
Pull down brake handle and insert plastic horse shoe to release brake.

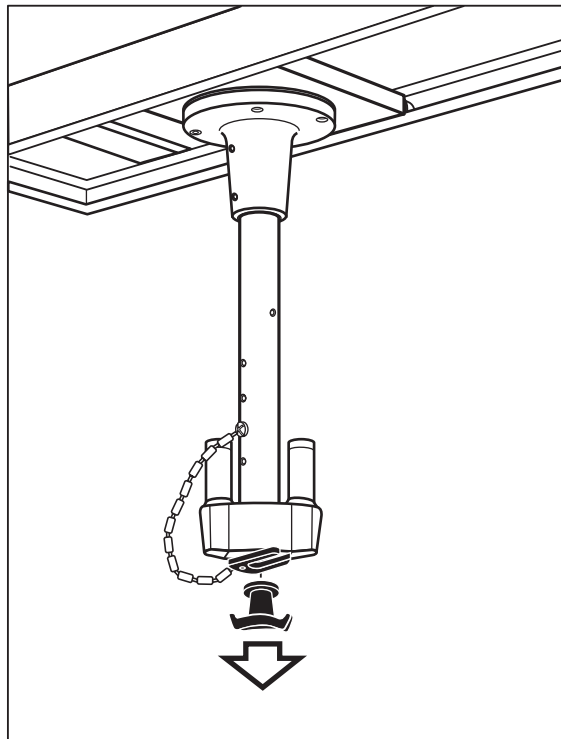


Figure 10 Releasing Brake

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